3: Anonymous U-4 (no date) 1920 RH1 Caucasia RH1

Batum, and were about to erect blast furnace smelting works there.

(ii) The Allahverdi, Aktala, and Shambru mines, in the Lialvar Mountains (Tiflis), are worked by the French Compagnie Métallurgique et Industrielle du Caucase. At Allahverdi, the most productive mine, the ore (copper sulphide) contains 7·18 to 18·56 per cent. of copper, and the output of copper in 1913 was 4,760 metric tons.

(iii) The Dzansul, Chiakathevi, and Erga mines, on the borders of the Provinces of Batum and Kutais, are exploited by the Caucasus Copper Co., a British company formed in 1900. Heavy initial outlay and climatic difficulties necessitated a large capitalization, but in 1913, when some 12,000 workmen were employed, the profit obtained was £87,800. The ore in the mines contains from 16 to 18 per cent. of copper. In 1912 the production was 40,000 metric tons of ore and 3,000 metric tons of copper, but in 1913 the progress of the company was described as disappointing, the amount of copper produced being only 3,280 metric tons.

In addition to the above, there are various native enterprises. In the Okchi valley in the Sangesur district of Elisavetopol, old mines of great productivity have been reopened, but pack-horses are the only available means of transport. The Katar mine in Sangesur is now worked by electricity. In the Pambak Mountains, also in the Government of Elisavetopol, there are mines at Delijan, Sirimadan, Sagali, Mishkan, and Seifalu; at the last of these the ore yields from 20 to 30 per cent. of copper. The most important native companies are the Melik Azariantz, the Kunduroff, and the Grielsky.

The output of copper in Caucasia was 7,536 metric tons in 1908, 9,520 in 1909, and 7,631 in 1910. In 1912, 303,225 metric tons of ore were mined, of which 200,000 were smelted, yielding 9,270 metric tons of metal. In 1913 the production was 9,220 metric tons. The figures for 1912 and 1913 refer to the British, French, and American companies only. It is not clear whether those

3: Anonymous U-4 (no date) 1920 RH1 Caucasia RH1

for earlier years include also the production of the native undertakings, but in any case their quota is comparatively small. In 1913 Caucasia furnished 31 per cent. of the total Russian output. All Caucasian copper is disposed of in Russia. 328

Unexploited copper exists in the Naltchinsky Hills and over a small area on each side of the Ossetian Military Road; in both cases the deposits are estimated to be rich. 135

The production of *Glauber's salt* in Tiflis in 1910, amounting to 725 metric tons, represented nearly half of Russia's total output. 317

Iron is worked only spasmodically. It occurs chiefly in the Government of Elisavetopol, at Chinarlidz, where the veins are from 2 to 21 metres thick, and as haematite at Sirimadan in the Pambak Mountains and in the Boyan valley. Nearly 2,000 metric tons were produced in 1908, but in no subsequent year does anything approaching that amount appear to have been obtained. 327 [135]

Lead.—There are extensive deposits of argentiferous lead, but they have been little worked. The largest production is that of the Alagir Smelting Co. in Terek; but the metal also occurs in the Lialvar district, in the upper valley of the Kura, and near Kedabek, and shortly before the war was found near Akmetovskoi station in Kuban. 328 135

Manganese.—The principal deposit covers an area of nearly 100 square miles in the Kvirili valley in the Government of Kutais, the head-quarters of the industry being at Chiaturi. The ore contains on an average 40 per cent. manganese, 0·16 per cent. phosphorus, and 8 per cent. silicon, but in some workings the proportion of manganese is as high as 50 per cent. The ore is got out by means of hand picks, and is sorted by hand in a primitive way. It is soft and readily mined, and the firmness of the rock renders extensive timbering unnecessary. The miners do not fully exhaust the drifts, but work on them until they become dangerous or, on account of diminishing yield, unremunerative, a point which is soon reached owing 317 [135]

3: Anonymous U-4 (no date) 1920 RH1 Caucasia RH1

Other places in Caucasia at which manganese occurs are Kvartala in Batum, where the French Manganese Ore Co. had arranged for the erection of plant at the end of 1913, Seifalu in Elisavetopol, and in the neighbourhood of Samtredi and Novo-Senaki. 347 [471]

Huge beds of *marl* are now being exploited near Novorossiisk by the cement companies there.

Salt.—There are rock-salt deposits in Erivan and Kars. and a certain amount of evaporated salt is produced in Baku and Daghestan. The total output of salt in 1910 was 28,340 metric tons, which consisted of 16,600 tons of rock-salt from Erivan, 6,930 tons of rock-salt from Kars, 4,370 tons of evaporated salt from Baku, and 440 tons of evaporated salt from Daghestan. The total output in 1911 amounted to 37,830 metric tons, and in 1913 to 32,260 metric tons.

Zinc is worked by the Alagir Smelting Co. at Sadon and Alagir, and from blende ore near Vladikavkaz. The company's works, which are 60 miles from the mines, are fitted with modern plant. In 1914 the company were planning a new exploitation, on a large scale, of both lead and zinc. The output of zinc in 1910 was 3,400 metric tons, and in 1912 the combined production of zinc and argentiferous lead was 26,000 metric tons. 328

Other Minerals.—At Soglik, near Dash Kessan, in the Gokcha range (Erivan) there is an inexhaustible supply of *alunite*, containing 37·58 per cent. of alum, but it is very little worked. *Antimony* is mined in small quantities in Tiflis. There is *arsenic* ore at Bechenakh, but up to the present it has not been exploited. There is a small output of *asbestos* from Sharopan, Vzhinevi, and Lechgum in Kutais. There are excellent *bitumen* beds on the Black Sea coast, and *asphalt* is a by-product of the petroleum industry. *Cobalt* is mined in small quantities in Elisavetopol. White *diatomite* (infusorial earth), containing 87 per cent. of silica, is worked at Kissatip, near Akhaltsikh (Tiflis). *Emery* is found at Karabulakh (Elisavetopol). *Gold* exists in very small quantities in the alluvial deposits of the Alindja river, and in the ore of the 135 316

328

b. 16 Centers of Non-Ferrous Metallurgy

328

b. 17 Centers of Aluminum Industry

327 metallurgical centers at Taganrog (with the largest boiler works in the USSR), and at Krasnyy Sulin.

316 Non-ferrous mineral resources: Of these, copper is the most important. It is mined mostly in Armenia (Alaverdi area, and Kafan) and in West Azerbaijan (Kedabek). Silver, lead, and zinc are mined only at Sadon (North Ossetian ASSR). It is noteworthy that the Caucasus (especially Dagestan), which has long been famous for its silver handicraft, has no other silver mine than this one. Molybdenum, one of the rare metals, is mined at Kadzharan (Azerbaijan SSR), and at Tyrny-Auz (Kabardian ASSR).

328 Centers of non-ferrous metallurgy: Located in Armenia and in the North Ossetian ASSR. Armenia has copper smelters at Alaverdi and Kafan, whereas the North Ossetian Republic is famous for its new metallurgical works at Dzaudzhikau which is of unionwide significance and is connected with the Sadon lead and zinc mines. In the same republic, Alagir has lead and zinc smelters and Minur has an ore-concentrating plant.

Centers of aluminum industry: The only plant, one of the important plants in the USSR, is at Yerevan. Production is based on cheap power from the stations on the Zanga River.

312 Machinery and metal-working plants: As the result of the Russian industrialization drive, nowadays almost every large city has machinery plants. Armavir, Maykop, Novorossiysk, Taganrog, and especially Rostov, specialize in